



Broadband and Economic Development

March 31, 2016

Town & Country Inn and Resort

Gorham, NH

5:00pm – 6:30pm



Workshop Agenda

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- Welcome and Introductions
- Broadband in Coos County
 - Current Technologies
 - Current Broadband Initiatives
 - Coos County Broadband Project
- Broadband and Economic Development
- Digital First Impressions of Berlin/Gorham Region
 - Regional Digital Presence Audit
 - Recommended Tools and Resources
- Broadband and Your Business
 - Importance of a Digital Presence
 - Other Resources



Broadband Technology Overview

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- Circa 1800's - 1-3 bits per second
- Circa 1980's - Dial-up
 - 300 bps to 56,000 bps
- Today – FCC defines broadband as:
 - 25 Mbps Download
 - 3 Mbps Upload



Copper Based

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- **Telephone Lines** (DSL, HDSL, VHDSL, SDSL)

- Dedicated bandwidth
- Low 10's of Mbps
- Distance from CO significant

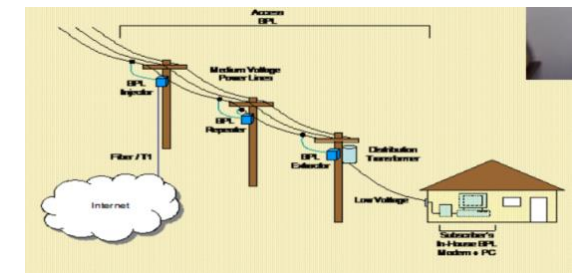


- **Cable Modem**

- Shared bandwidth
- Many 10s of Mbps

- **Broadband over Powerline (BPL)**

- Not widespread – low bandwidth
- Interferes with communication systems



Wireless

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- **Cell Phones – significant speed each generation**

- 1991 – 2G (Kbps)
- 2001 – 3G (1.4 Mbps/600Kbps - peak >5 Mbps)
- 2006 – 4G LTE (5-10 Mbps and peak 50 Mbps)



- **Satellite**

- 15 Mbps
- Latency issues



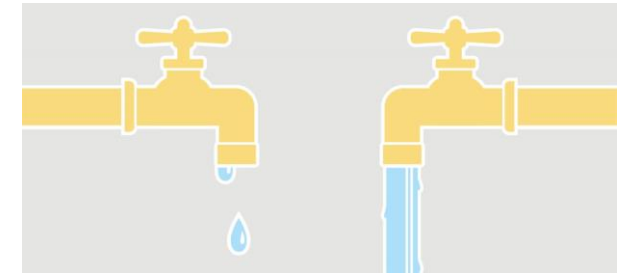
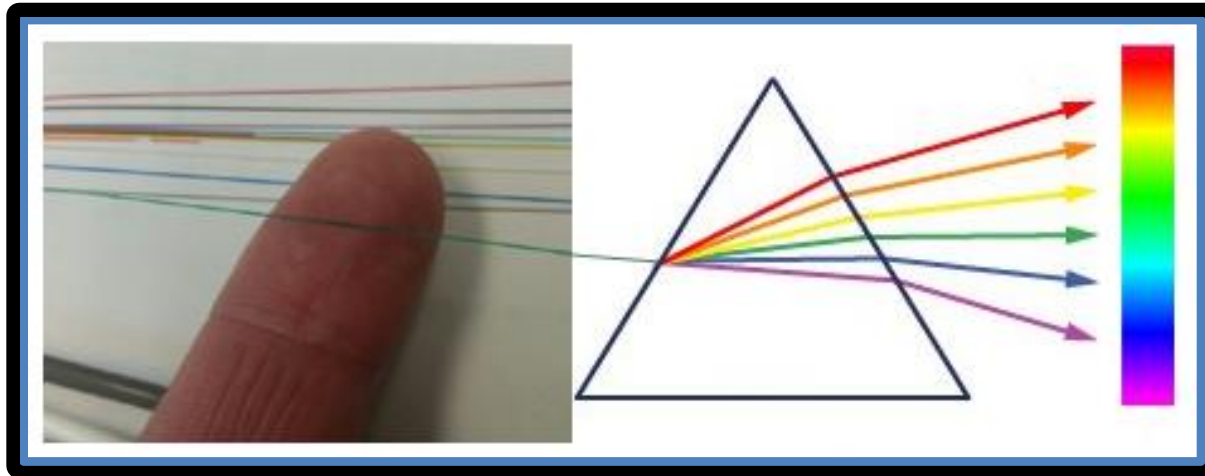
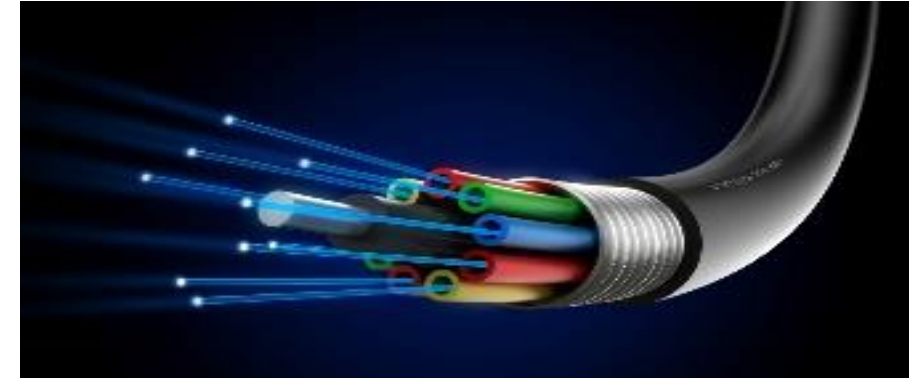
- **Mixed**



Fiber

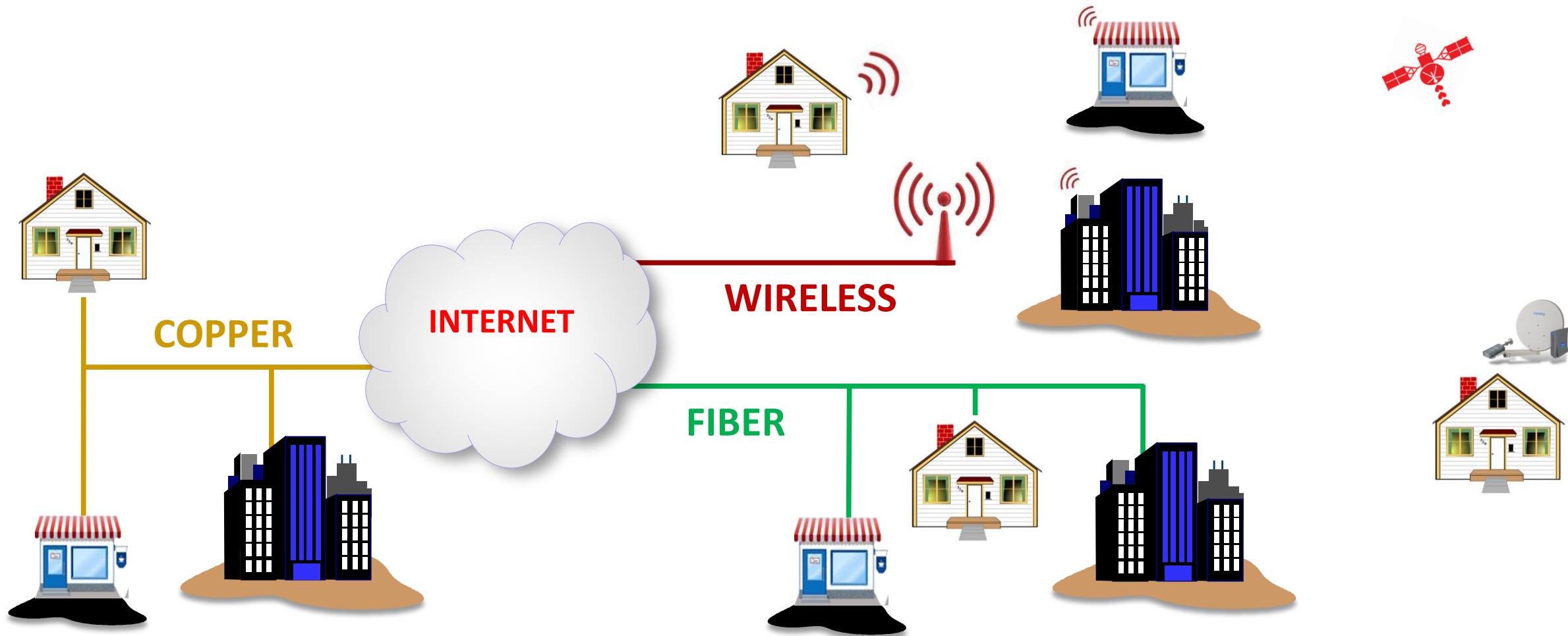
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- Best solution
- Unlimited bandwidth
- Symmetrical
- Typically the backhaul for all other technologies



Multi-Technology Solution

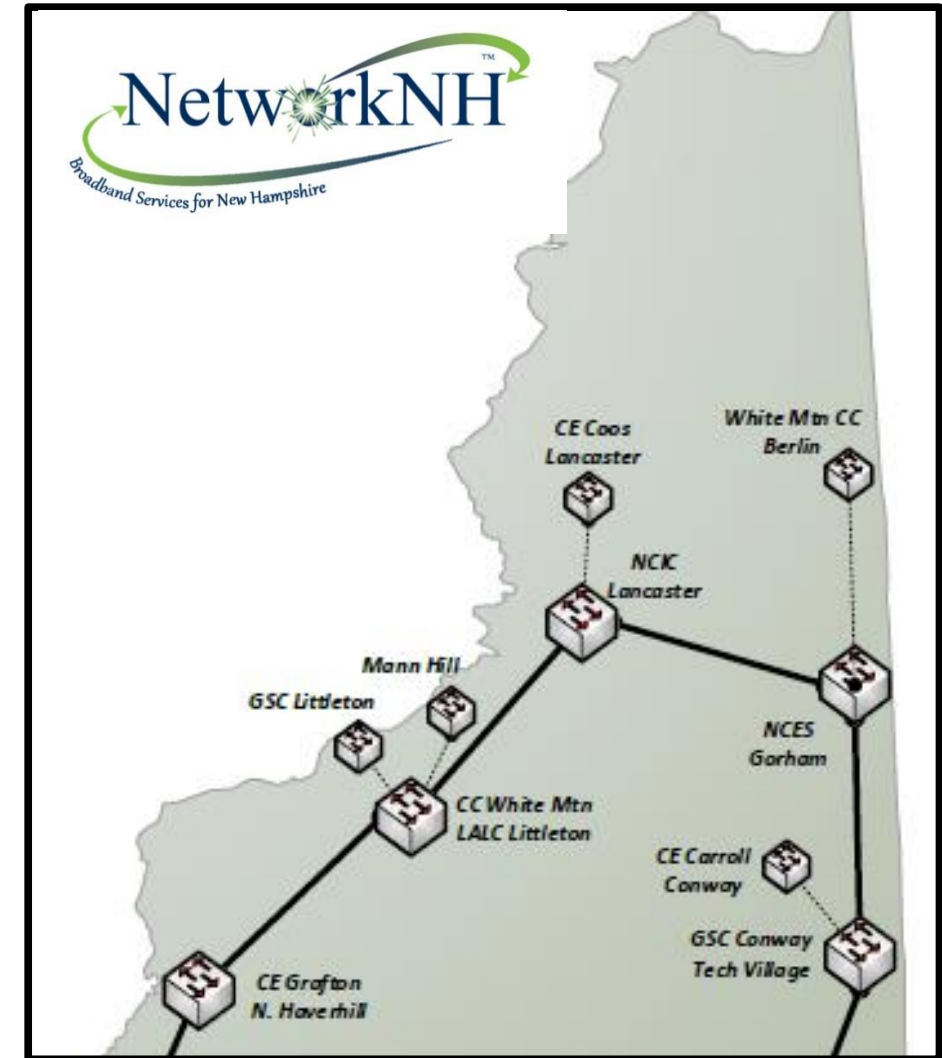
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USNH Regional Optical Network

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- DWDM between USNH Institutions and Dartmouth
 - Forty 10 Gbps waves per fiber (480 Gbps capacity)
- Statewide Carrier Ethernet Network
 - 20 Gbps Backbone
 - Cooperative Extension
 - Granite State College
 - CCSNH, NCES, NCIC
 - Backup for NHSafeNet
- Regional Connections
 - Boston, Albany, NYC
 - Internet and Internet2



Current Broadband Initiatives

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● North Country Cell Service Initiative (NBRC)

- Carrier neutral 4G LTE service
- 1 to 4 sites in progress
- Potential for up to 10 more sites



● Nationwide First Responder LTE Network

- Dedicated to Public Safety using new freq. band
- Alternative RFP in progress
- Potential statewide commercial access when available



New Hampshire School Connectivity Initiative

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● The NHSCI coalition

- Spearheaded by DoE
- Governor's Office
- UNH
- DRED
- NH DoIT



● Working with ESH

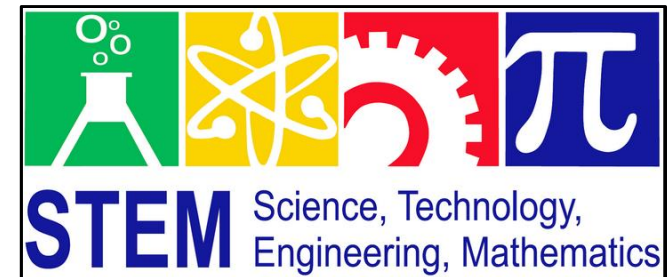


New Hampshire School Connectivity Initiative

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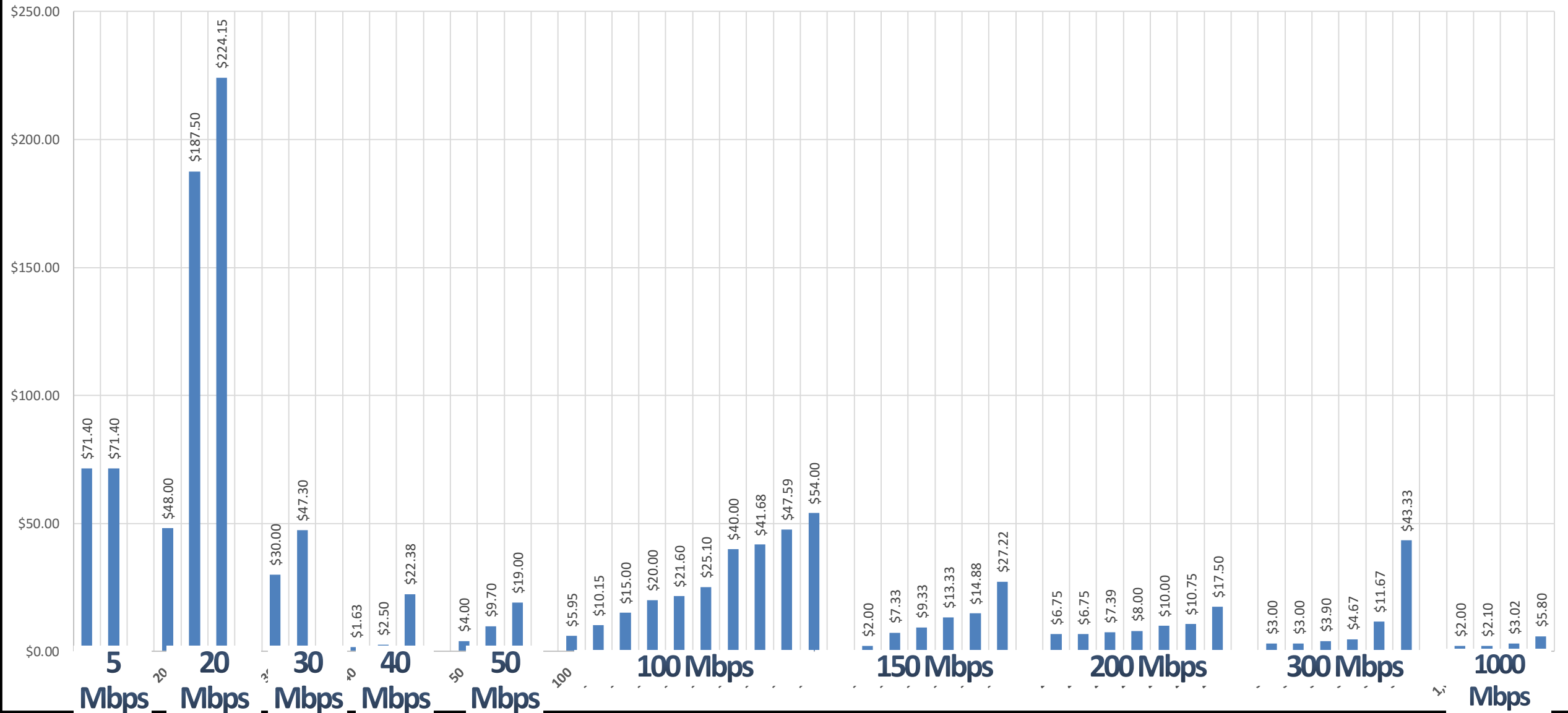
- The goals of the NHSCI are:
 - Create K-12 broadband connectivity report (UNH & TAB)
 - Develop K-12 connectivity goals and a plan
 - Create a plan to enhance utilization of E-Rate funds

- EducationSuperHighway Offers
 - [Fiber consulting program](#)
 - [School WI-FI Buyer's Guide](#)
 - Facilitate consortium pricing & portal

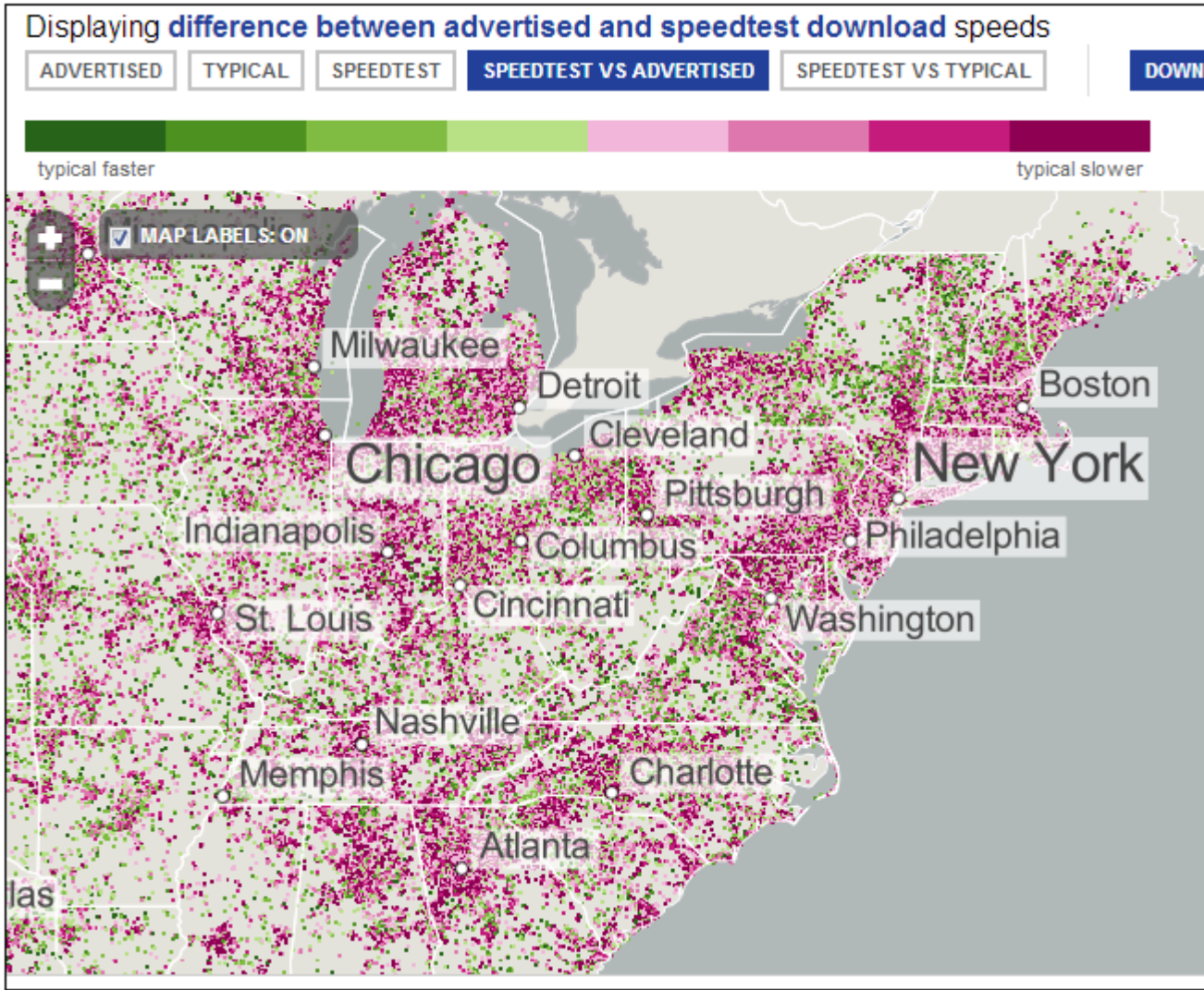


Large Cost Variances

Cost/Mbps



Advertised versus Actual Downloads



Telecommunications Advisory Board (TAB)

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- SB373: Use of school building aid for E-Rate Match
- HB1572: \$2M tax credits annually for GigE buildout
- HB1180: Allow towns to bond for broadband
- Telehealth training for DHHS and Medicaid expansion









Broadband in Coos County Project

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- Project Goal:
 - Foster increased broadband deployment and utilization in Coos County
- Project Activities:
 - Data Collection: Extend and enhance mapping of broadband availability
 - Data Analysis: Identify areas that are unserved/underserved
 - Modeling: Generate cost estimates for additional deployment
 - Coordination: Work with communities, RPCs, identified sectors, providers
- Funded by the Northern Border Regional Commission

What is Broadband?

	Download Speed	Upload Speed
2010	768 kbps	200 kbps
		
2012/2013	6 Mbps	1.5 Mbps
		
2016	25+ Mbps	3+ Mbps
		

Broadband Availability in NH

Issues:

Data from FCC as of Dec. 2014
Aggregated to census block level
Not all providers participating

Table 1. Broadband Availability in New Hampshire by County

County	Total Population (2010)	Population Unserved	% of Total Population Unserved
Belknap	60,088	2,791	4.6%
Carroll	47,818	2,208	4.6%
Cheshire	77,417	22,207	28.7%
Coos	33,055	10,167	30.8%
Grant	89,118	9,488	10.6%
Hillsborough	400,721	20,549	5.1%
Merrimack	146,445	10,667	7.3%
Rockingham	295,223	2,345	0.8%
Strafford	123,143	3,129	2.5%
Sullivan	43,742	8,499	19.4%
State of New Hampshire	1,316,470	93,150	7.1%

Source: <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477>

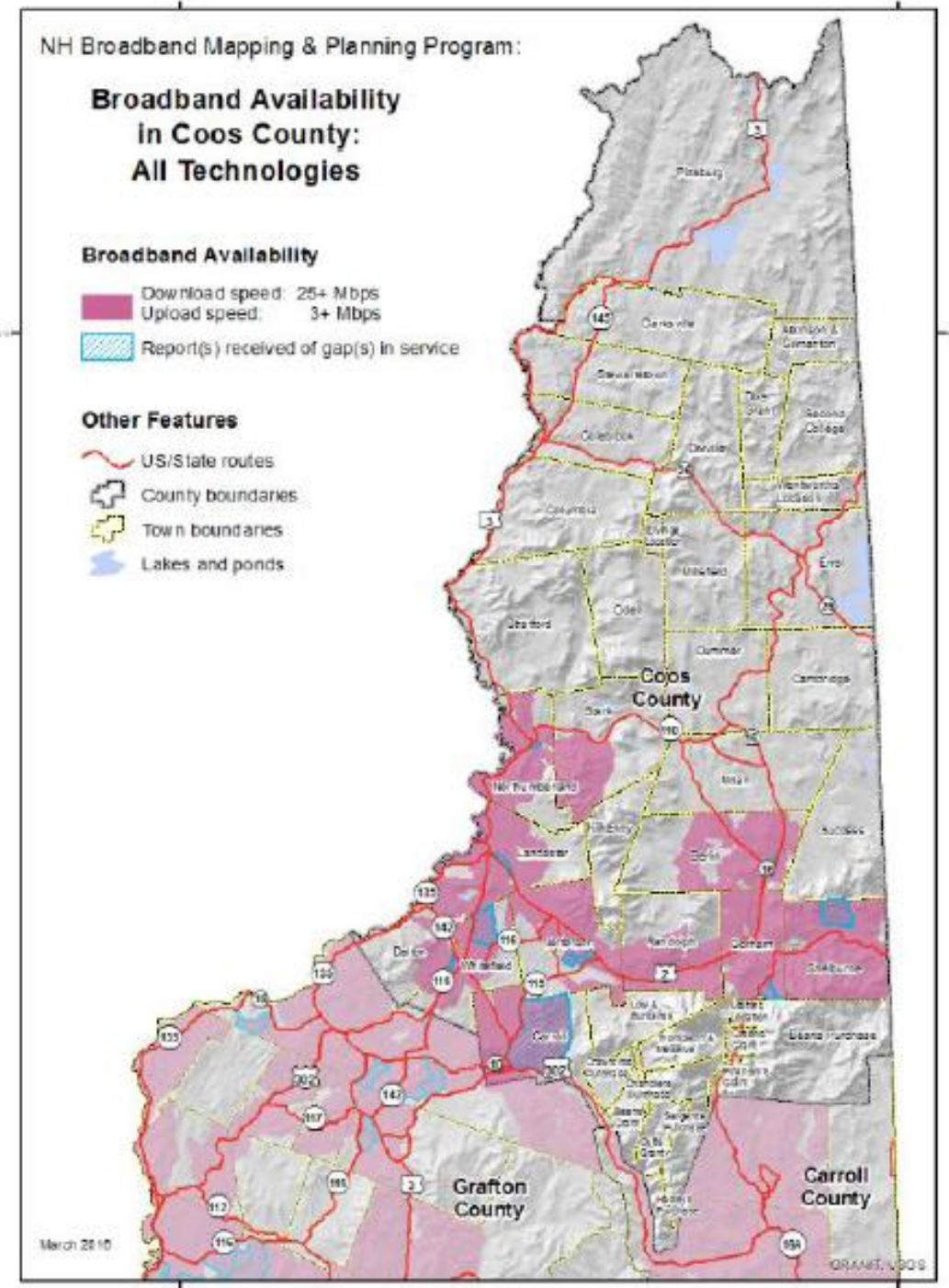


Where is it Available?

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Issues:

Aggregating to census block level
Data from December 2014
Not all providers participating



Monitoring Broadband Availability

Broadband Providers in Coos County

Provider	Technology	Class	Reported Speed (download/upload)
Comcast	Cable	Business	No speeds reported
Time Warner Cable Inc.*	Cable	Business	50 Mbps / 5 Mbps
AT&T Mobility LLC	Cellular		6 Mbps / 3 Mbps
United States Cellular Corporation	Cellular		1.5 Mbps / 1.5 Mbps
USAT Corp.	Cellular		1.5 Mbps / 768 Kbps
Verizon Business Global LLC *	Cellular	Business	3 Mbps / 3 Mbps
Birch Communications	Cellular, xDSL		No speeds reported
186 Communications, LLC	Fiber	Business	1 Gbps / 1 Gbps
Bretton Woods Communications*	Fiber		25 Mbps / 3 Mbps
G4 Communications	Fiber		10 Mbps / 1.5 Mbps
Level 3 Communications, LLC	Fiber	Business	1 Gbps / 1 Gbps
PAETEC Communications Inc*	Fiber	Business	1.5 Mbps / 1.5 Mbps
Great Auk Wireless	Fixed-Wireless		1.5 Mbps / 768 Kbps
King Street Wireless, L.P.*	Fixed-Wireless		1 Mbps / 200 Kbps
Wireless LINC / NCIC	Fixed-Wireless		6 Mbps / 6 Mbps
Argent Communications, LLC	Fixed-Wireless, Cable		10 Mbps / 1.5 Mbps
dishNET Satellite Broadband, L.L.C.*	Satellite		15 Mbps / 2 Mbps
GCI Communication Corp.*	Satellite	Business	No speeds reported
HNS License Sub, LLC*	Satellite		15 Mbps / 2 Mbps
Skycasters, LLC	Satellite		10 Mbps / 1.5 Mbps
StarBand Communications Inc.	Satellite		3 Mbps / 768 Kbps
ViaSat Communications, Inc.*	Satellite		25 Mbps / 3 Mbps
VSAT_Systems*	Satellite		2 Mbps / 1.3 Mbps
BayRing Communications*	Copper-Wireline (T1)	Business	No speeds reported
EarthLink Business, LLC*	Copper-Wireline (T1)	Business	4 Mbps / 4 Mbps
Freedom Ring Communications, LLC*	Copper-Wireline (T1)		No speeds reported
Axiom Technologies	xDSL	Business	No speeds reported
FairPoint Communications, Inc.*	xDSL	Business	7 Mbps / 768 Kbps
Oxford Networks	xDSL		No speeds reported
FirstLight	xDSL, Fiber	Business	No speeds reported



Broadband & Economic Development

Charlie French, Program Leader
Community & Economic Development



University of New Hampshire
Cooperative Extension

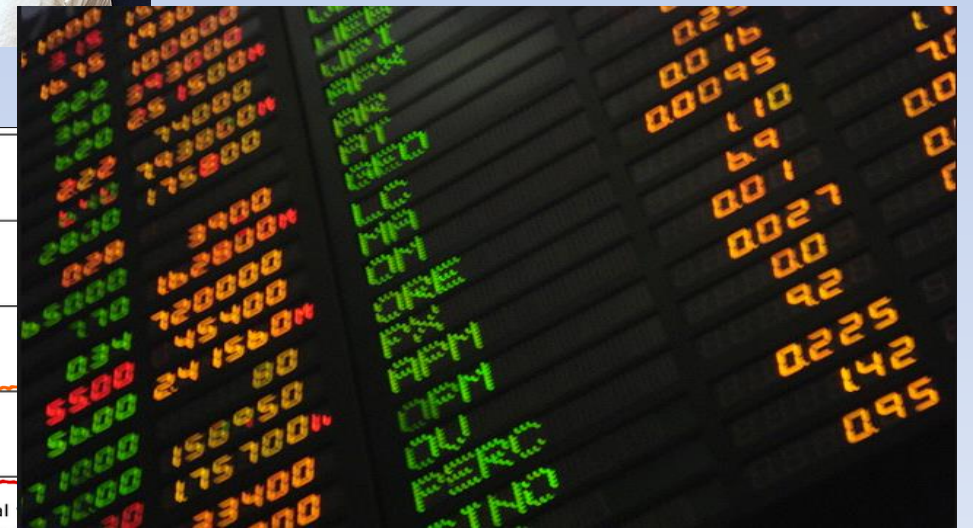
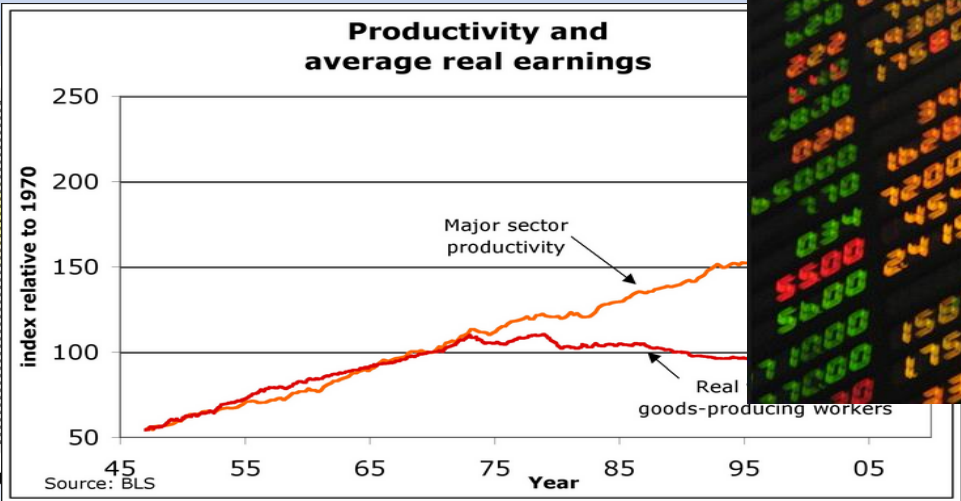
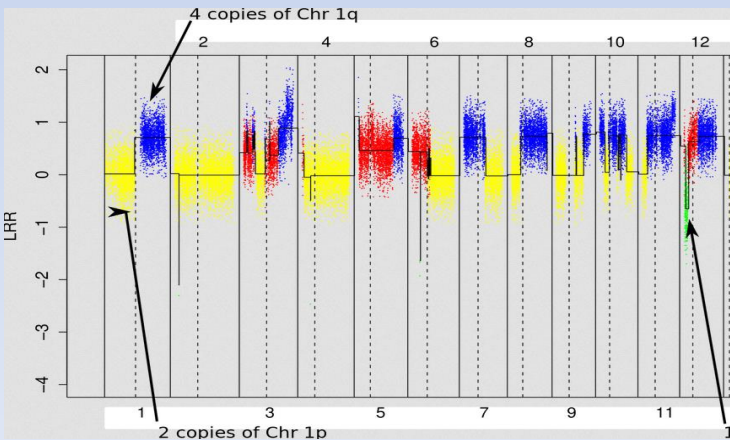
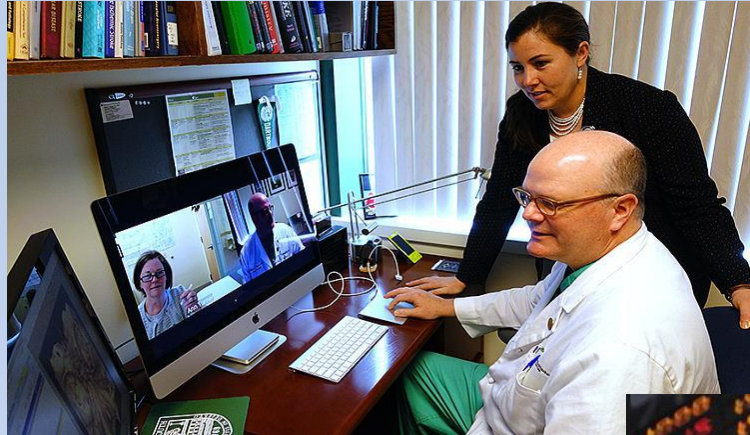
BROADBAND INTERNET: IT'S ESSENTIAL

FIND OUT WHY IN 60 SECONDS



EXPLORE MORE FACTS

What Can One do with Broadband?



Broadband & Economic Development

Broadband is integral to the New Hampshire's capacity to improve its economic future and quality of life!

- ✓ *Better jobs*
- ✓ *Enhanced education*
- ✓ *Accessible health care*



1. Jobs

- **11,000 new jobs**
- **\$634 million impact**
- **3X the revenue for businesses**



Sources:

Bureau of Labor Statistics cited in The National Broadband Plan

Crandall, R., Singer, H. 2010. The Economic Impact of Broadband Investment. National Cable & Telecommunications Association.

2. Education



- **Digital technologies**  **career opportunities**

Sources:

Pew Internet & American Life, 2013

NARUC Conference, 2010

3. Health



- **\$927 billion cost-savings for people 65+ (Litan, 2008)**

Source:

Litan, R. 2006. *Potential Economic Benefits to the Nation From Accelerated Broadband Deployment to Older Americans and Americans with Disabilities*. New Millennium Research Council.

Nice or Necessary?

“... we need a high speed system to help us to track our product from net to market and get NH seafood on the map locally.”

Bob Campbell, Former Manager, Yankee Fishermen's Co-op



What do Industrial Site Locators Look for?

A Site Selector's Perspective:

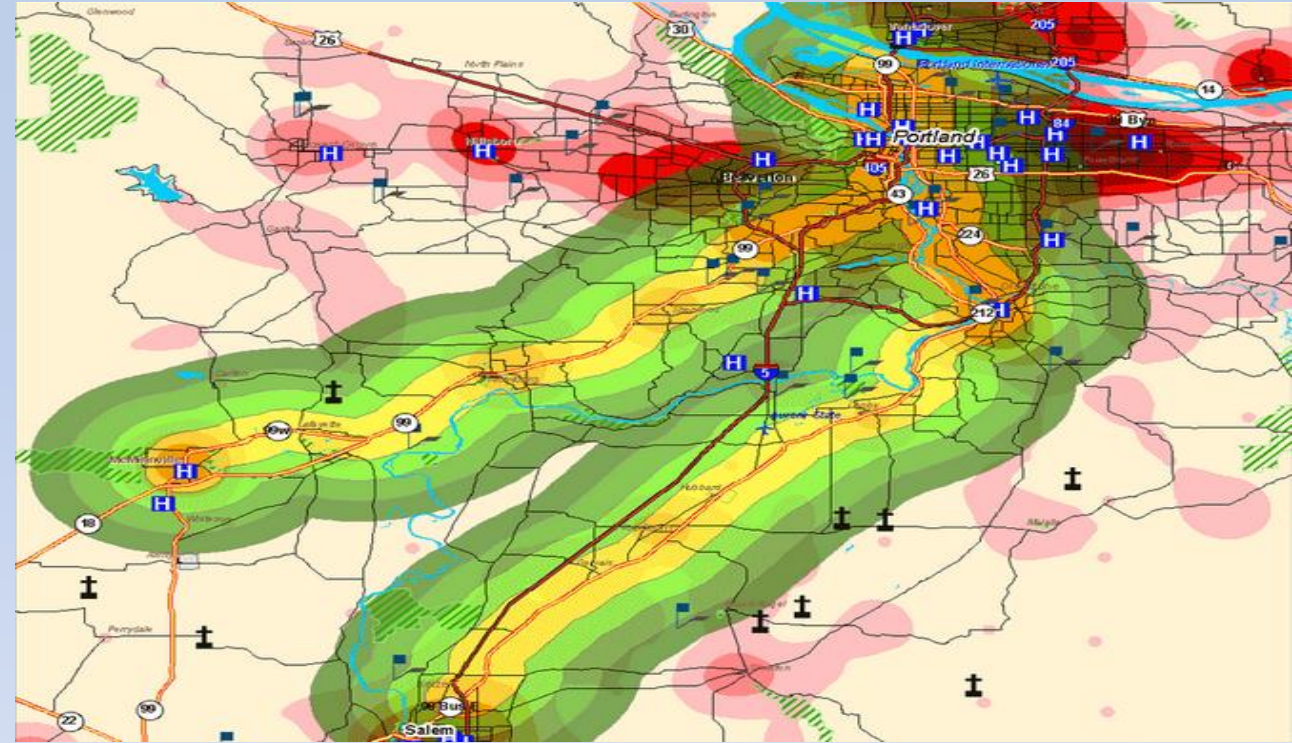
Broadband fiber

Speeds above 25 Mbps

Synchronous up and down speeds

Quality residential broadband

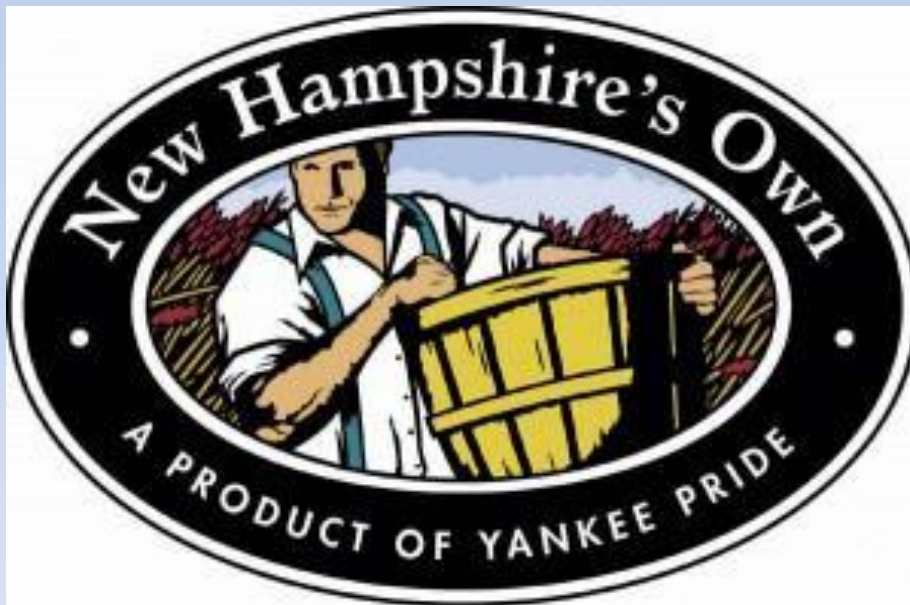
Healthy competition



Small Businesses

Do you have sufficient connectivity to meet your needs?

64% Yes



Cities and Towns

Do you have sufficient connectivity to meet your needs?



72% Yes



University of New Hampshire Cooperative Extension

Digital 1st Impressions

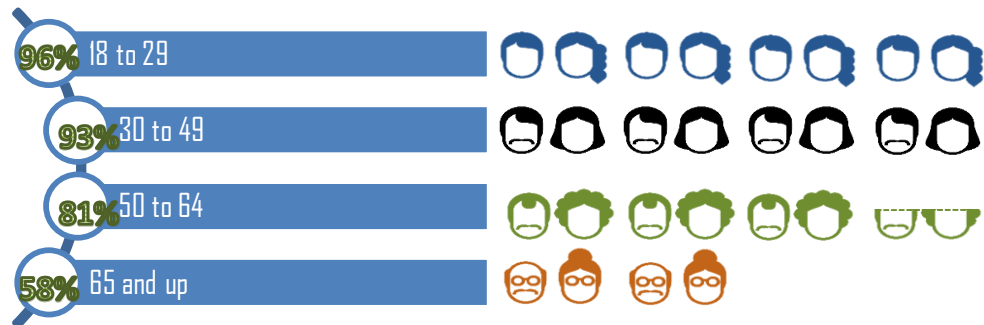
Broadband Forum
Gorham, New Hampshire

March 31st, 2016

Geoffrey Sewake, Extension Field Specialist
Community and Economic Development

Different strokes for different folks.

Internet use by age group.



Social media (e.g. Facebook) use by age group.



The take away:

 Target is **65 and older**:
Expect lower use of internet.

 Target is **younger**:
Expect higher use of internet.



The *active* digital presence.

The **existence, persistence** and **development** of a person or organization online.



Focus on one or two platforms:

It's hard to keep up on things online—good content on one or two platforms is better than little or bad content on too many.



Develop your presence on platforms used by your target audience:

A lot of people are on Facebook, while things like Instagram and Pinterest have a more focused appeal.

What are some of the platforms available?

The image displays several digital platforms used for sharing content, primarily food-related:

- Facebook Desktop Header:** Shows the user's name (Paul Rawlinson) and a search bar.
- Smartphone (Instagram):** Displays the Instagram app interface with a post from 'chrisconnolly'.
- Pinterest Mobile Interface:** Shows a grid of recipe pins:
 - Healthy deviled eggs:** A pin with a detailed recipe for healthy deviled eggs, including ingredients like hard-boiled eggs, yogurt, mustard, onion, honey, and paprika.
 - Cream Cheese Tarts:** A pin for 'Summer Dessert: Cream Cheese Tarts Topped with Fruit', featuring tarts with cream cheese, fruit, and kiwi.
 - Boston Cream Poke Cake:** A pin for 'The Country Cook: Boston Cream Poke Cake'.
 - Lemon Curd:** A pin for 'Lemon Curd', describing it as a tart, refreshing custard spread for scones or muffins.
- Facebook Mobile Interface:** Shows a post about 'Bacon & Cheddar Deviled Eggs' with a '1 repin' and a 'Pinned by Nadine Skinner' notification.

Online presence in the Berlin-Gorham.

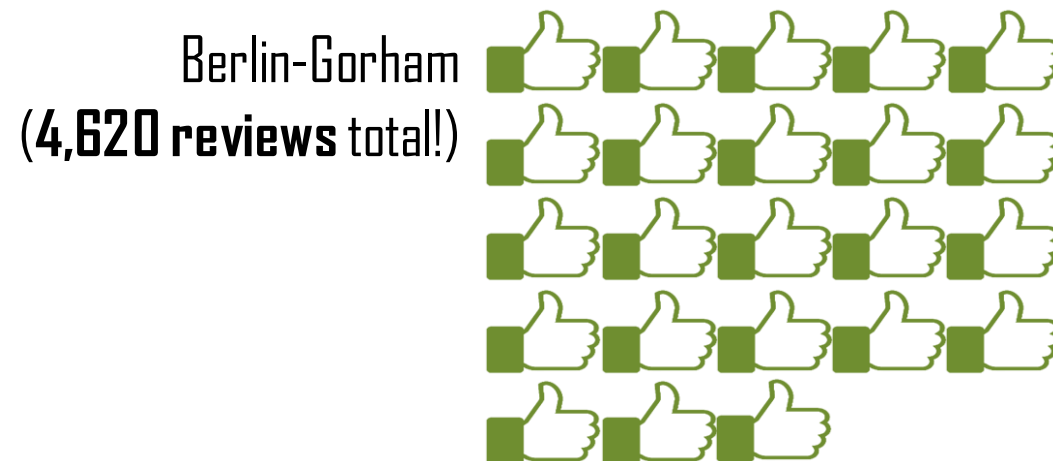
Many area businesses and organizations are already on Facebook!

What about Yelp?



Of the top listed businesses in the area, less than half have claimed their business.

So How Many TripAdvisor Reviews Are There?





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Thanks for listening.

Contact Information.

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Geoffrey Sewake

Thank You

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